REMARKS

Preliminary Remarks:

Claims 1 to 35 are pending of which claim 1 is independent. Claim 13 is amended to correct a minor typographical error and to replace "Ƶ" with "Z" to better correspond to current U.S. patent practice; claim 27 is amended to depend from claim 11 or 12. No new matter is added.

Claim Rejections:

Rejection under non-statutory obviousness-type double patenting

Claims 1 to 35 were provisionally rejected under the judicially created non-statutory obviousness-type double patenting as being unpatentable over claims 1 to 31 of co-pending U.S. Pat. Appl. No. 10/576,256 in view of de Feraudy (U.S. Pat. No. 6,460,788). Applicants respectfully traverse.

Applicants respectfully submit that claims 1 to 35 are not unpatentable over claims 1 to 31 of co-pending U.S. Pat. Appl. No. 10/576,256 in view of de Feraudy. In particular, both co-pending U.S. Pat. Appl. No. 10/576,256 and de Feraudy are silent with respect to circulating flow rate values. These values are combined with the powder particles dimensions that are in aqueous suspension, which helps in achieving dynamical stabilisation of the slurry and the selective and fine separation of various synthetic organic materials with the target density, ds, of ±0.0005. Therefore, Applicants respectfully request withdrawal of this rejection.

Rejection under 35 U.S.C. § 112

Claims 13 to 26 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicants respectfully traverse.

According to the Examiner, these claims are directed to a water-soluble acrylic copolymer but encompass some "embodiments" which the polymers claimed are not acrylic. Specifically, the Examiner points to "embodiments" in which n = 0. Applicants disagree with the Examiner's position that when n = 0, the polymers are not acrylic because n and q can only *separately* be zero so when n = 0, q ≠ 0. *See*, Specification at page 22. Therefore, even when n is 0, the resulting polymer is still acrylic and Applicants respectfully submit that claims 13 to 26

are not indefinite under 35 U.S.C. § 112, second paragraph. Applicants respectfully request withdrawal of this rejection.

The Examiner states that claim 27 lacks sufficient antecedent basis. Claim 27 is amended to depend from claim 11 or 12 and Applicants respectfully submit that either claim provides sufficient antecedent basis for claim 27. Accordingly, Applicants respectfully submit that claim 27 is not indefinite under 35 U.S.C. § 112, second paragraph, and Applicants respectfully request withdrawal of this rejection.

Rejections under 35 U.S.C. § 103

The burden is on the examiner to make a *prima facie* case of obviousness, which requires an objective analysis as set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). In *KSR International v. Teleflex Inc.*, 550 U.S. 398, 82 U.S.P.Q.2d 1385 (2007), the U.S. Supreme Court affirmed that this analysis includes the following factual inquiries:

(1) determining the scope and content of the prior art;

(2) ascertaining the differences between the claimed invention and the prior art; and

(3) resolving the level of ordinary skill in the pertinent art.

Further, the *Examination Guidelines for Determining Obviousness Under 35 U.S.C. § 103 In View of the Supreme Court Decision in KSR International Co. v. Teleflex Inc.* (USPTO Guidelines) state that, having undertaken the factual inquiries of *Graham*, a rejection under 35 U.S.C. § 103 may be supported by one or more of the following rationales:

(1) combining prior art elements according to known methods to yield predictable results;

(2) simple substitution of one known element for another to obtain predictable results;

(3) use of a known technique to improve similar methods in the same way;

(4) applying a known technique to a known method ready for improvement to yield predictable results;

(5) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(6) variations that would have been predictable to one of ordinary skill in the art; and

(7) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine the prior art reference teachings to arrive at the claimed invention.

72 Fed. Reg. 57526, 57529 (October 10, 2007).

Each of the above-noted rationales requires predictability in the art and/or a reasonable expectation of success, and the Examiner must consider objective evidence that rebuts such predictability and reasonable expectation of success. The objective evidence or secondary considerations may include unexpected results and/or failure of others (*e.g.*, evidence teaching away from the currently claimed invention), evidence of commercial success, and long-felt but unsolved needs, as found in the specification as-filed or other source. *Id.* When considering the obviousness of a combination of known elements, the operative question is "whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR*, 550 U.S. at __, 82 U.S.P.Q.2d at 1396.

Claims 1 to 11 and 28 to 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over de Feraudy in view of Allen (WO 2004/009200). Applicants respectfully traverse.

While de Feraudy discloses a method for separating a mixture of polymer materials derived from waste, the density differential achieved by de Feraudy's separation method is no more than 0.03 (for example between the second density separator 18 and the third density separator 19). Because a finer density differential cannot be attained with de Feraudy's density multi-stage separation, all the mixtures of separated materials are treated in one or several parallel additional separations and purification lines comprising stages arranged in series (*see*, column 9, line 49 to column 11, line 36).

Allen discloses a method of separating mixtures of used polymers using a density separation technique. Allen does not disclose any method for separating a mixture of polymer materials derived from waste. In Allen's method, the polymers are added to a slurry consisting of water and powder particles consisting of magnetite, titanium dioxide, sand or ferrosilicate. As explained by Allen, the particular media size range depends both on the media material, more particularly, the density of the media, and on the equipment forming the separation circuit (*see*, page 11, lines 22 to 25, page 12, lines 5 to 6). According to Allen, in order to form a stable slurry, the particle size used for magnetite media should be between 5 and 30 µm. Other

minerals or media particles that are less dense than magnetite, such as silicone dioxide, form a stable slurry with coarser particles, but those values are not specified (*see*, page 12, lines 5 to 9). In Allen's process, fine particles that are smaller than the smaller size threshold must be removed in order to avoid foaming and surface contamination (*see*, page 12, line 10 to page 13, line 10).

In other words, one of ordinary skilled in the art, wishing to improve the density separation performance of de Feraudy, would not use the teachings of Allen because the values of the differential density disclosed by Allen are not greater than 0.02 g/cc, *i.e.*, the Allen method can only separate polymer materials having differential density *close to those of de Feraudy*. Therefore, the polymer materials having the narrow density values sorted by the Allen method, would also be subjected to additional separating or purification steps or methods of de Feraudy, *i.e.*, several parallel additional separations and purification lines. So, the teachings of Allen add nothing to de Feraudy.

Finally even if, *arguendo*, one of ordinary skill in the art combined the teachings of de Feraudy with those of Allen, this combination would not result in claims 1 to 11 and 28 to 35.

The solution suggested by Allen is to control the particle size in a specific range depending on the media density, more particularly by removing fines that are under a specified size and to remove coarser particles that are over a specified size. The only example of media size particles is for magnetite particles whose size range should be comprised between 5 μm and 30 μm. Those particles are added to a slurry and the density separation is made in a hydrocyclone or a cylindrical vortex.

When substituting de Feraudy's particles of clay with Allen's particles (magnetite), one of ordinary skill in the art would certainly use the specified magnetite's particle size range and the cyclonic separation – as it is taught by Allen. Consequently, one of ordinary skill in the art would obtain a method of density separation using a very particular media size range and a cyclonic separation. However, one of ordinary skill in the art is aware of the high rates of the circulating flow and of the fact that the circulating flow in a hydrocyclone or a cylindrical vortex is turbulent.

By contrast, claims 1 to 11 and 28 to 35 are directed to a method for separating a mixture of polymer materials derived from waste claiming use of a limited sized particles of different media together with a stabilizing agent which is to be use with particular hydraulic separators.

More particularly, the method is to be performed in a density hydraulic separator that, according to the application, is a static separator for which the aqueous phase is stagnant or a dynamic separator for which the aqueous phase is an active laminar stream. These hydraulic separators are then able to accept different separation media added to a slurry that is settled in order to obtain a very high density separation performance (a differential, ds, of ±0,0005), having high separation capacities, and running continuously.

Moreover, according to the application, the smallest particle size are preferred, as being very useful in settling more efficiently the slurry. These particles are not detrimental for the separated materials for which the aqueous phase is stagnant or which are moved by a laminar flow (contrary to Allen particles, which are moved by a turbulent flow because these particles are abrasive for the separated materials).

In conclusion, Applicants respectfully submit that claims 1 to 11 and 28 to 35 are not unpatentable over de Feraudy in view of Allen and respectfully request withdrawal of this rejection.

Claims 12 to 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over de Feraudy in view of Allen and further in view of Boutin *et al.* (U.S. Pat. No. 4,504,643).

Applicants have discussed de Feraudy and Allen, *supra*. Boutin *et al.* disclose water-soluble (meth)acrylic acid/methallylsulfonate copolymers used as scale inhibitors for aqueous environments. The scope of Boutin *et al.* is to impede scale formation when heating aqueous solutions at a temperature higher that the boiling point of the water. However, Boutin *et al.* do not overcome any of the deficiencies of de Feraudy or Allen. Therefore, Applicants respectfully submit that claims 1 to 11 and 28 to 35 are not unpatentable over de Feraudy in view of Allen and further in view of Boutin *et al.* and respectfully request withdrawal of this rejection.

CONCLUSION

In view of the amendments and remarks above, Applicants respectfully submit that this application is in condition for allowance and request favorable action thereon. The Examiner is invited to contact the undersigned if any additional information is required.

As this response is filed within the statutory period for reply, Applicants believe that no fee, other than for the one multiple dependent claim and the appropriate extension of time, is due. If additional fees are required, they may be charged to Deposit Account No. 50-4254, referencing Attorney Docket No. 2901653-000014.

Respectfully submitted,

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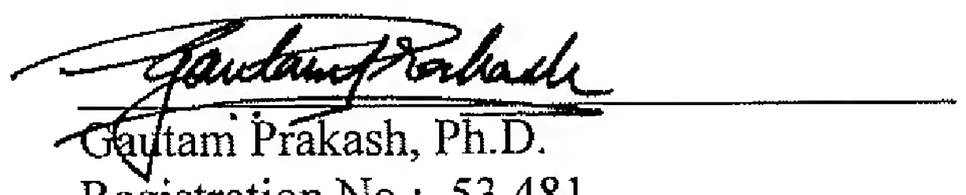

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